LevelOne

User Manual

VDS-0120

VDSL2 Ethernet Converter(PSE)

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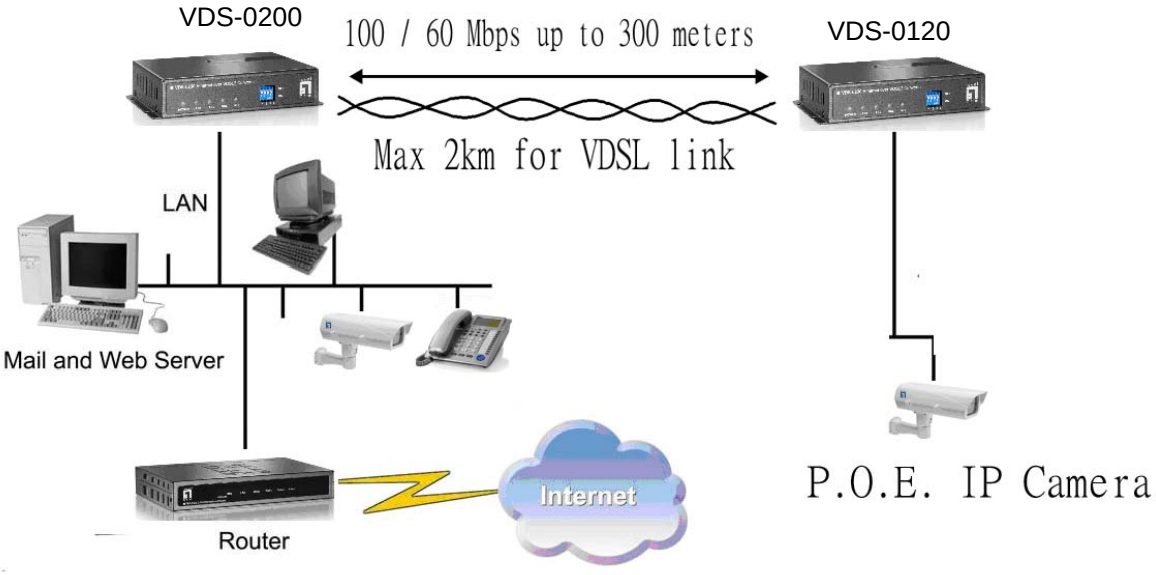
1. Introductions

The VDS-0120, a VDSL2 (Very high-bit-rate Digital Subscriber Line) PSE LAN Extender, provides a broadband transmission up to 100/60Mbps of downstream/upstream data rate over single pair copper line for point-to-point Ethernet connectivity. With 100/60Mbps data rate, VDS-0120 supports transmission distance up to 300 meters, and 30/10 Mbps for 1km long range connection. Users may also select a fixed data rate or a fixed SNR margin for different copper line ranging. With Power Sourcing Equipment, VDS-0120 provides power supply over Ethernet cable to the 802.3af compliant power device.

With plug and play features and minimum installation time, each VDS-0120 can be configured into either CO for central side or RT for remote side by dip switch setting. The VDS-0120 conforms to the ITU-T G.993.1 and G.993.2 to meet VDSL/VDSL2 and SG15Q4 DMT for network requirements. A pair of V102 and VDS-0120 offers a cost effective solution for bandwidth-hungry applications such as LAN-to-LAN connectivity, Video Streaming, FTTB, and MDU/MTU over single twisted pair telephone line.

2. Application Notes

1) Ethernet To Ethernet Bridge Extension



3. Features

- ITU-T G.993.1, G.993.2 VDSL/VDSL2 and SG15Q4 DMT Compliance
- 100/60Mbps DownSream/UpStream for distance up to 300 meters
- Supports VDSL2 connection up to 2000 meters
- IEEE802.3af compliant -48V Power-Sourcing-Ethernet (PSE) standard
- Minimum 15.4Watt for Class 3 output power
- RJ11 for DSL interfaces + RJ45 for Ethernet LAN port
- Five LED Indicators
- 4 Dip Switches for Configuration Settings
- Trellis Coding support up to 1024 Discrete Multi-Tone (DMT) bins
- Auto MDIX for 10/100 BaseT Ethernet LAN Ports
- Low-Latency for Video/Voice/Data applications
- Line Surge Protection
- Selectable Fast and Interleaved modes
  - Fast mode guarantees a minimum end to end latency less than 1 ms.
  - Interleaved mode provides impulse noises protection for any impulse noise with a duration less than 250 us. Interleaved mode has a maximum end to end latency of 10 ms. Interleaved mode is the default mode.
- Selectable fixed data rate and fixed SNR margin
  - User may select fixed SNR margin (9 dB) or fixed target data rate.
  - When fixed SNR margin is selected, the systems will maintain the SNR margin at 9 dB across all available loop length.
  - When fixed target data rate is selected, the system will lock the data rate at 50/20Mbps whenever the calculated SNR margin is higher than 9 dB. This will result in the best system stability and is the default mode.

4. Packing Contents

Inside the package you should find:

(1) One VDS-0120 VDSL2 PSE LAN Extender

(2) One AC to DC Power Adaptor (DC12V/2.5A)

(3) One User Manual CD

Please check if the packing is damaged or any component is missing. If so, please contact your distributor.

5. LED Indicators

On the front panel of VDS-0120, there are four LED indicators as the following

VDS-0120 Rear Panel

POWER: "**Green On**" indicates power is on and normal.

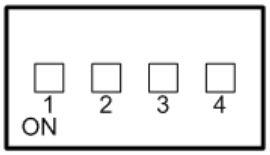
LAN: "**Green On**" indicates Ethernet LAN port is in connection.
"**Flashing**" indicates Ethernet LAN data activities.

DSL: "**Green On**" indicates VDSL2 is in connection.
"**Flashing**" indicates VDSL2 is in line handshaking.

M/S: "**Green On**" indicates VDS-0120 is set as Slave (VTU-R) mode.
"**OFF**" indicates VDS-0120 is set as Master (VTU-C) mode.

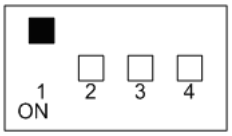
PSE: "**Green On**" indicates VDS-0120 is providing power over Ethernet.
"**OFF**" indicates the Power Sourcing Equipment is OFF.

6. Dip Switches Settings



	Pin 1	Pin 2	Pin 3	Pin 4
	VTU-C/R	Mode	Rate Limit	SNR

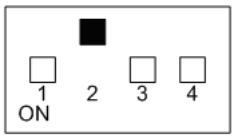
OFF	VTU-C	Interleaved	50/20 Mbps	9dB
ON	VTU-R	Fast	Full Rate	6dB



Pin 1: **VTU-C/R Switch**

VTU-C: VDS-0120 will act as at the Central Office (CO) side.

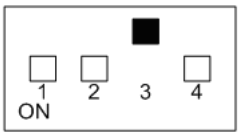
VTU-R: VDS-0120 will act as at the Customer Premise Equipment (CPE) or Remote side.



Pin 2: **Mode for impulse noise protection**

Interleave mode: Protection for up to 250ms impulse noises with latency less than 6 ms.

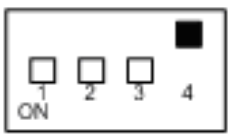
Fast mode: Direct data transmission with latency less than 1ms.



Pin 3: **Rate limit control**

50/20 Mbps: Line rate limited to 50/20 Mbps.

Full Rate: Provides up to 100Mbps/60Mbps line rate in short line.



Pin 4: **Signal to Noise Ratio (SNR)**

9dB: Higher SNR margin (9dB) will result in less error with more stable VDSL2 link.

6dB: Original and Normal channel noise protection with 6 dB SNR.

7. Data Rates & Distances

Performance in AWG 26 Line at 6dB with full rate

Down Stream Data Rate (Mbps)	Up Stream Data Rate (Mbps)	Distance (feet)
100	60	500
98	53	1000
90	44	1250
80	36	1500
70	27	1750
60	18	2000
48	11	2500
39	8	3000
35	3.5	3500
28	0.3	4000